

**THE RADIOECOLOGY OF AGED FALLOUT AT FORMER
NUCLEAR TEST SITES IN THE MARSHALL ISLANDS**

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During the 1940–50s the United States conducted a total of 67 atmospheric nuclear tests in the northern Marshall Islands. Near-surface detonations over land or water produced highly localized fallout deposition containing a range of fission products, activation products, and unfissioned nuclear fuel. Decades followed before the full health and ecological consequences of the nuclear test program in the Marshall Islands were truly realized. Cleanup and replanting of foodcrops began on Bikini in 1968, followed by limited resettlement in 1970. However, dose estimates made by the Lawrence Livermore National Laboratory indicated that when locally grown foodcrops matured and became available for consumption, the resulting body burden of Cesium-137 (^{137}Cs) and the associated dose would exceed federal guidelines. In August 1978, the Bikini residents were moved off their island never to return. What became clear in the research and monitoring studies to follow is that coral soils make ^{137}Cs much more available for plant uptake than do soils from North America and Europe. Knowledge of preferential uptake ^{137}Cs into locally grown foodcrops was an important factor in reliably predicting the dose for returning residents, and developing a remediation strategy to reduce the uptake of ^{137}Cs into plants. This presentation will review the radioecology of aged fallout in coral atoll ecosystems, and demonstrate how this knowledge is being used to address long-term radiological surveillance needs in the Marshall Islands.

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